CLAIMS

1. A computer system comprising a cooling system, said computer system comprising at least a processing unit such as a central processing unit generating thermal energy when processing and said cooling system comprising a heat exchanger intended for being in thermal contact with the processing unit and where the processing unit is of a type comprising a base plate having leggings extending parallel outwards from the base member, said leggings being intended for extending through openings in a slot mounted on a motherboard of the computer system, and where the heat exchanger constitutes an individual unit separate from the processing unit, and said cooling unit comprising a compressor for compressing cooling refrigerant from a vaporised state to a liquid state and comprising first pipes transporting the cooling refrigerant from the compressor to the heat exchanger and second pipes leading the cooling refrigerant from the heat exchanger back to the compressor and said computer system further comprising a regulator for at least starting and stopping the compressor and where the compressor is a low voltage compressor with a voltage usage below the voltage of the public electrical power distribution network.

2. A computer system according to claim 1, wherein the low voltage compressor is intended for voltages in the range from 6V to 48V, preferably is intended for voltages in the range from 6V to 12V, most preferably is intended for voltages of 12 V.

3. A computer system according to claim 1 or claim 2, wherein the regulating means is capable of variable regulating the rotational speed and thereby the capacity of the compressor, preferably by regulating the speed infinitely, alternatively by regulating the speed stepwise.

4. A computer system according to claim 3, wherein the regulating means is regulated by a software means controlled by the computer system, alternatively that the regulating means is regulated by hardware means preferably also controlled by the computer system, alternatively controlled by components other than those of the computer system.

5. A computer system according to any of the preceding claims, wherein the processing unit and the heat exchanger both are enclosed in an insulation material and that the insulation material is provided between at least the heat exchanger and the ambient environment, preferably also between the processing unit and the ambient environment.

6. A computer system according to claim 5 wherein the processing unit and the heat exchanger both are enclosed in a box, that insulation material is provided between at least the heat exchanger and the inside of the box, preferably also between the processing unit and the inside of the box.

7. A computer system according to any of the preceding claims, wherein a heating element is in contact with the outside of the box, alternatively is in contact with the inside of the box, where the heating element consists of resistive wires, that the wires are in contact with the insulation, alternatively are in contact with the box, and that electrical power is supplied to the resistive wires for providing a heating of the wires and to the insulation, alternatively a heating of the inside or the outside of the box.

8. A computer system comprising a cooling system, said computer system comprising at least a processing unit such as a central processing unit (CPU) generating thermal energy when processing and said cooling system comprising a heat exchanger being in thermal contact with the processing unit and where the processing unit is of a type comprising a base plate having leggings extending perpendicular outwards from the base member, said legging being intended for extending through openings in a socket mounted on a motherboard of the computer system, and where the heat exchanger constitutes an individual unit separate from the processing unit, and said cooling system comprising a compressor for compressing cooling refrigerant from a vaporised state to a liquid state and comprising first pipes transporting the cooling refrigerant from the compressor to the heat exchanger and second pipes leading the cooling refrigerant from the heat exchanger back to the compressor, and the heat exchanger being intended for thermal contact with the processing unit by a force directed perpendicular to a top of the processing unit and being intended for biasing the heat exchanger towards the processing unit.

9. A computer system according to claim 8, where the force is applied by means of spring members being attached between the heat exchanger and the socket.

10. A computer system according to claim 8 or claim 9, where the heat exchanger is contained in a box and where the force is applied by means of spring members being attached between the box and the socket.

11. A computer system according to claim 10, where the box is provided with a first opening intended for receiving the heat exchanger and a second opening intended for receiving the pipes to and from the heat exchanger, and where the first opening is directed towards the base plate and the socket and has an orifice having circumferential measures being approximately the same as, alternatively smaller than, external measures of the base plate and the socket.

12. A computer system according to any of claim 10 or claim 11, where the box is biased towards the base plate by means of biasing members, where the biasing members is attached between the box and the socket onto which the base plate is mounted.

13. A computer system according to claim 12, where the biasing members consist of at least one first part attached to the box and at least one second part attached to the socket, and where opposing ends of the first part and the second part are intended for being biased towards each other by fastening means, preferably adjustable fastening means such as bolts and nuts.

14. A computer system according to claim 13, where other spring members are provided in connection with the fastening means, and where biasing of the first part and the second part of the biasing means takes place via the other spring members so that a biasing force between the box and the base plate, and thereby between the heat exchanger and the processing unit, is limited by a spring force of the spring members.

15. A computer system according to any of claims 8-15, and where the heat exchanger consists of metallic balls being in close proximate contact with each other, preferably being sintered together, and where passages are formed between the balls, and where said passages form passages for the cooling refrigerant to pass trough the heat exchanger.

16. A computer system according to claim 15, and where the heat exchanger has a circular cylindrical shape, and where an end surface of the cylinder is in abutting contact with a top surface of the processing unit.

17 A computer system according to any of claims 8-16, wherein only the heat exchanger is enclosed in an insulation material, and where the insulation material is provided between the heat exchanger and the ambient environment.

18. A computer system according to any of claims 8-17, wherein only the heat exchanger is enclosed in a box, and where insulation material is provided between the heat exchanger and the inside of the box.

19. A computer system according to any of claims 8-18, wherein a heating element is in contact with the leggings extending from a bottom surface of the base plate of the processing unit, alternatively is in contact with a top surface of the base plate, where the heating element consists of resistive wires, and that electrical power is supplied to the resistive wires for providing a heating of the leggings and alternatively also of the base plate.

20. A computer system according to any of the preceding claims, wherein the components of the cooling system is provided with means for placing the components inside a standard cabinet of the computer system, and that said means is shaped so that the means may be placed in slots inside the computer system, alternatively may be attached to boards of the computer

21. A computer system according to any of the preceding claims, wherein the compressor is supplied with electrical power from the built-in power supply of the computer, which power supply also is intended for powering other components of the computer, such as data-processing components.

22. A computer system according to any of the preceding claims, wherein at least the compressor, preferably at least the compressor and the condenser, is/are mounted on a frame, where the compressor and the condenser have dimensions smaller than 5 1/4 inches, where the frame has dimensions of about 5 1/4 inches and that the frame with the

compressor and the condenser mounted is capable of being displaced in and out of built in drive bay shafts on the front side of a computer cabinet.

23. A computer system according to any of claims 1-18, wherein at least the compressor, preferably at least the compressor and the condenser, is/are mounted on a frame, where the compressor and the condenser have dimensions smaller than 3 1/2 inches, where the frame has dimensions of about 3 1/2 inches and that the frame with the compressor and the condenser mounted is capable of being displaced in and out of built in drive bay shafts on the front side of a computer cabinet.

24 A computer system according to any of the preceding claims, wherein the box is a plastic box having a thermal conductivity lower than that of metallic materials and that the box consists of at least two parts that are mutually connected by connection means and that the connection means are made of a material with thermal conductivity that is low compared to metallic materials.

25. A computer system according to any of the preceding claims, wherein the heat exchanger only is in thermal contact with the processing unit, and that the heat exchanger and the processing unit is separable so that the processing unit may be substituted and the heat exchanger may be thermally connected to a substitutive processing unit, alternatively that the heat exchanger may be substituted and the processing unit may be thermally connected to a substitutive heat exchanger.

26. A computer system according to any of the preceding claims, wherein at least an outer surface of the box is black and preferably is also lustreless, so that the box is capable as easy as possible to receive heat from the ambient environment.

27. A computer system according to any of the preceding claims, wherein the box on an inner surface, alternatively on an outside surface, of the box is provided with a moisture impermeable coating, preferably a metallic coating such as a metallic foil or a metallic film, so that insulation inside the box is prevented from absorbing moisture.

28. A computer system according to any of the preceding claims, wherein the first pipe and the second pipe are led from the compressor to the heat exchanger respectively from the heat exchanger to the compressor in parallel, and that the first pipe in immediate

vicinity of the heat exchanger has a smaller cross section than the second pipe, and that the first pipe when entering the heat exchanger is led into the second pipe and is led into the heat exchanger co-axially with the second pipe.

29. A computer system according to any of the preceding claims wherein the heat exchanger is made of copper and that the pipes is made of copper and that the pipes and the heat exchanger are mutually able of being disconnected.

30. A cooling system for a computer system, said computer system comprising a number of electronic components generating thermal energy when being employed and said cooling system constituting a separate cooling system with a fan for sucking air from the surroundings into the cooling system, and a heat exchanger for cooling the air being sucked into the cooling system, and comprising a compressor for compressing cooling refrigerant from a vaporised state to a liquid state and comprising first pipes transporting the cooling refrigerant from the compressor to the heat exchanger and second pipes leading the cooling refrigerant from the heat exchanger back to the compressor and further on to the condenser, and said cooling system further comprising a means for passing air, that has been sucked past the heat exchanger and thereby has been cooled by the cooling system, to the interior of a cabinet of a computer system